



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

202

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,419	12/08/2003	George P. Vella-Coleiro	1052.051	2505

22186 7590 11/29/2005
MENDELSON AND ASSOCIATES, P.C.
1500 JOHN F. KENNEDY BLVD., SUITE 405
PHILADELPHIA, PA 19102

EXAMINER
TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,419

Applicant(s)

VELLA-COLEIRO, GEORGE P.

Examiner

YOUNG T. TSE

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 10-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/21/04, 11/12/04, 1/5/05, 3/11/05, 8/8/05, 9/18/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed June 21, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The foreign document AQ and the two other documents AR and AS filed June 21, 2004 have not been considered by the examiner.

Drawings

2. Figures 1-4 should be designated by a legend such as --Prior Art-- or --Related Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because "p Filter" shown in both Figures 5 and 9 and "η Filter" shown in Figure 5 should be "P Filter" and "N Filter" as mentioned in the

specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1-8 and 10-19 are objected to because of the following informalities: in claim 1, line 4, "generated by" should be "generated by the steps of"; in line 1 of the dependent claims 2-7, "The invention" should be "The method"; in claim 3, line 1, "(e.g., Fig. 5)" should be deleted, also see claims 4, 5-6, 10-11, 13, and 18-19; in line 1 of the dependent claims 10-19. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horaguchi et al. (US 6,925,106 B2) in view of Ha (US 6,700,442 B2).

With respect to claims 1-2, Horaguchi discloses one embodiment of a circuit configuration of a pre-distortion type distortion compensation amplifying apparatus in Figure 1 for reducing spurious emissions. Referring to Figure 1, the pre-distortion unit 1 generates a first frequency-dependent pre-distortion signal corresponding a an input signal or a first set of frequency of the input signal; the compensation table 4 generates a second frequency-dependent pre-distortion signal corresponding the input signal or a second set of frequency of the input signal; the pre-distortion unit 1 generates a pre-distorted non-baseband signal to the amplifier 2 to generate a amplified non-baseband signal, the amplifier 2 generates a feedback signal to the table correction control circuit 10 to control the correction for pre-distortion, wherein the magnitude of the pre-distortion is frequency-dependent to the non-baseband input signal. See column 4, lines 20-24, column 10, lines 9-25, and column 11, lines 16-20.

Horaguchi fails to show or suggest combining the output of the first frequency-dependent pre-distortion signal and the output of the second frequency-dependent pre-distortion signal of the compensation table 4 to the amplifier 2.

Ha discloses an analogous pre-distortion low power amplifier circuit in Figures 1 and 2. In Figure 2, the first frequency-dependent pre-distortion signal 118 is generated by the input divider 10, the input attenuator 22 and the delay 24, the second frequency-dependent pre-distortion signal 114 is generated by the carrier cancellation component 50, and the outputs of signals 114 and 118 are combined by the combiner 44 of the distortion reduction component 52 (see Figure 2B).

Therefore, it would have been obvious to one of ordinary skill in the art to include at least a combination circuit prior to the amplifier 2 of Horaguchi's pre-distortion circuit as taught by Ha in order to combine the outputs the first and second frequency-dependent pre-distortion signals for the amplifier 2 to perform better amplification for transmission.

With respect to claim 7, the magnitude and phase are frequency-independent of the input signal and the first and second frequency-dependent pre-distortion signals are combined to generate the pre-distortion signal.

With respect to claim 8, the input signal is a baseband signal and the first and second frequency-dependent pre-distortion signals are generated in a digital domain since the pre-distortion circuit is operated in digital format.

Allowable Subject Matter

7. Claim 9 is allowed.
8. Claims 10-19 would be allowable if rewritten or amended to overcome the objection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claims 3-6 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or suggest that a method or apparatus for applying pre-distortion to an input signal to generate a pre-distorted signal comprising three different signal processing paths adapted to generate a main pre-distortion signal from an input signal; a first frequency-dependent pre-distortion signal corresponding to a first set of frequency components for the input signal, and a second frequency-dependent pre-distortion signal corresponding to a second set of frequency components for the input signal, wherein the first set of frequency components is different from the second set of frequency components; and a combiner adapted to combine the first and second frequency-dependent pre-distortion signals with the main pre-distortion signal to generate the pre-distorted signal.

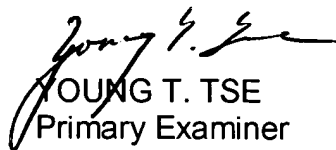
Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References Hatsugai, Miyatani, McGowan et al., and Wright et al. are related to distortion or pre-distortion compensation apparatus for compensating distortion occurring in an amplifier for reducing spurious emissions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-30513051. The examiner can normally be reached on Monday-Thursday and alternative Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The Central FAX Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


YOUNG T. TSE
Primary Examiner
Art Unit 2637